

### **REMARKS**

By this amendment, Applicants have amended claim 1 to include the embodiment of the exhaust gas purification system illustrated in Figure 1. Applicants have placed reference numerals in claim 1 to be consistent with Figure 1 and have incorporated the features of claim 4 into claim 1 to describe that the particulate filter is catalytically activated. Claims 2, 3, 5-7 have been amended to remove “characterized” and replace it with “wherein”. Claims 4 and 8 have been canceled without disclaimer and Applicants reserve the right to pursue these claims in one or more divisional/continuation applications. These amendments do not add new matter. Applicants respectfully requests entry of these amendments and allowance of the pending claims.

#### **I. Objections To Drawings**

The Examiner objected to the drawings for failing to describe reference numeral 6 in Figure 1. Applicants have amended the specification to include that reference numeral 6 in Figure 1 is a converter shell. This was accidentally omitted in error. Therefore, this objection is now moot.

#### **II. Claim Rejection Under 35 U.S.C. § 102(b)**

The Examiner rejected claims 1, and 6-8 under 35 U.S.C. 102(b) as allegedly being anticipated by U.S. Patent Publication 2002/0053202 (Akama). Applicants respectfully traverse this rejection.

To establish a *prima facie* case of anticipation under 35 U.S.C. 102(b) the Examiner has the burden of showing that each and every element of the claim is disclosed in the prior art reference. Applicants respectfully submit that the Examiner has not met this burden. The Examiner cites to Figure 5 (Example 16) of Akama to support his position that the claims are anticipated. Applicants respectfully disagree. For convenience, Figure 5 of Akama is reproduced below:

## FIG.5

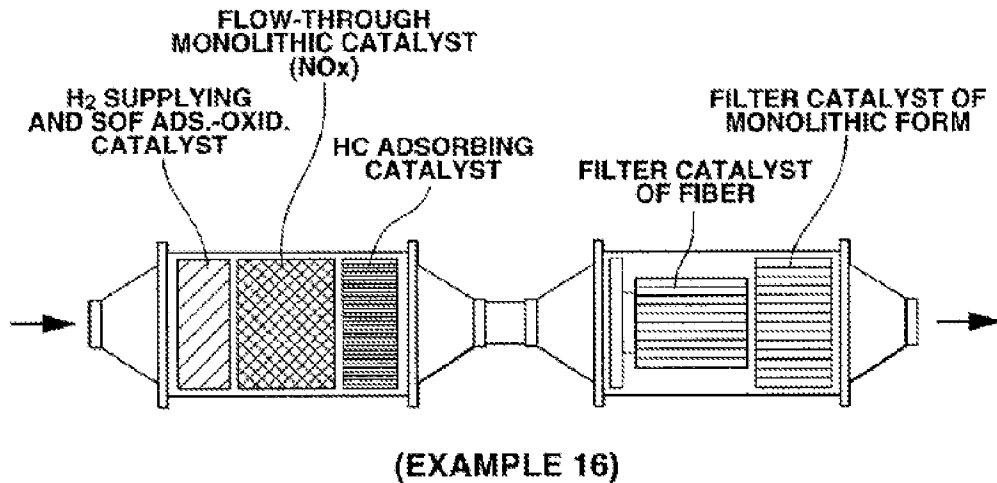
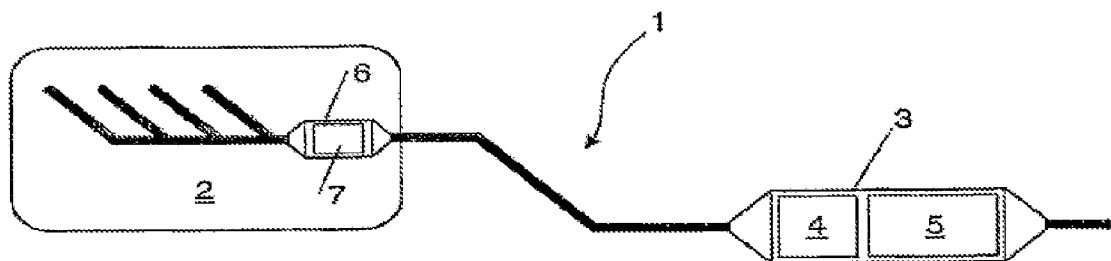


Figure 5 of Akama teaches an arrangement of two converter shells one after the other. The upstream converter shell contains an oxidation catalyst, NO<sub>x</sub>-absorbing catalyst and a HC-adsorbing catalyst. All three catalysts are directly abutting one another. The downstream converter shell contains two different filter catalysts. Both converter shells are located only a short distance from one another. Akama's arrangement is contrary to Applicants' arrangement as currently claimed in claim 1 (which is also shown in Applicants' Figure 1 reproduced below).



More particularly, Applicants' oxidation catalyst 7 is located close to the engine 2 so that it warms up quickly after cold start. The particulate filter 5 as recited in claim 1 is arranged in the underfloor area of the motor vehicle. This location poses less stringent conditions with respect to space as would locations closer to the engine (such as the arrangement illustrated in Akama's Figure 5). Thus, Applicants' filter can be made larger in order to reduce back-pressure. The drawback of the underfloor location is the fact that the exhaust gas is already quite cool

when it reaches the underfloor area. But this fact is utilized advantageously by Applicants by placing the hydrocarbon absorber 4 in the same converter shell 3 as the filter and directly in front of the filter 5. The advantage here is that the hydrocarbon absorber, too, remains quite cool and thus maintains its ability to store hydrocarbons from the exhaust gas over wide operating conditions of the engine. Only when the exhaust gas temperature of the engine is raised voluntarily, (e.g. by engine control unit) the temperature in the underfloor area can be raised up to a level where the hydrocarbon absorber desorbs the stored hydrocarbons which then in turn gets combusted at the catalyst of the particulate filter to raise the temperature of the filter up to the ignition temperature of the accumulated soot.

Akama simply does not disclose or make obvious the arrangement of the oxidation catalyst close to the engine while the particulate filter is arranged in the underfloor area of the motor vehicle. Therefore, Akama does not anticipate the pending claims and Applicants respectfully request that the rejection under 35 U.S.C. § 102(b) be reconsidered and withdrawn.

### **III. Rejection Under 35 U.S.C. § 103(a)**

The Examiner rejected claims 2-4 under 35 U.S.C. 103(a) as allegedly being unpatentable over Akama in view of U.S. Patent No. 6,080,375 (Mussmann). Applicants respectfully traverse this rejection.

A prior art reference cannot render an invention obvious if the reference teaches away from the claimed invention. *KSR International Co. v. Teleflex Inc.* 127 S. Ct. 1727, 1734. None of cited references make obvious, among other things, the arrangement of the oxidation catalyst close to the engine while the particulate filter is arranged in the underfloor area of the motor vehicle.

As discussed above, Akama teaches an arrangement of two converter shells one after the other. The upstream converter shell contains an oxidation catalyst, NO<sub>x</sub>-absorbing catalyst and a HC-adsorbing catalyst. All three catalysts are directly abutting one another. The downstream converter shell contains two different filter catalysts. Both converter shells are located only a short distance from one another. Akama teaches away from Applicants' arrangement as currently claimed. Applicants' oxidation catalyst is located close to the engine so that it warms up quickly after cold start. Applicants' particulate filter is arranged in the underfloor area of the motor vehicle. This location poses less stringent conditions with respect to space as would

locations closer to the engine (such as the arrangement illustrated in Akama's Figure 5). Thus, Applicants' filter can be made larger in order to reduce back-pressure. The drawback of the underfloor location is the fact that the exhaust gas is already quite cool when it reaches the underfloor area. But this fact can be utilized advantageously by placing the hydrocarbon absorber in the same converter shell as the filter and directly in front of the filter. The advantage is that the hydrocarbon absorber, too, remains quite cool and thus maintains its ability to store hydrocarbons from the exhaust gas over wide operating conditions of the engine. Only when the exhaust gas temperature of the engine is raised voluntarily, the temperature in the underfloor area can be raised up to a level where the hydrocarbon absorber desorbs the stored hydrocarbons, which then in turn gets combusted at the catalyst of the particulate filter to raise the temperature of the filter up to the ignition temperature of the accumulated soot. Akama teaches away from the arrangement of the oxidation catalyst close to the engine while the particulate filter is arranged in the underfloor area of the motor vehicle. Mussmann does not rectify these defects and does not make obvious the arrangement of the oxidation catalyst close to the engine while the particulate filter is arranged in the underfloor area of the motor vehicle.

Applicants respectfully submit that one of ordinary skill in the art would not combine the references in the way the Examiner does. Even if one of ordinary skill in the art was to combine the references one would still not obtain the present claims. Accordingly, Applicants respectfully submit that the claims cannot be considered obvious over any of the cited references alone or in combination and request that the rejection under 35 U.S.C. §103(a) be reconsidered and withdrawn.

#### **IV. Conclusion**

Reconsideration and allowance are respectfully solicited

Applicants hereby request a three-month extension of time under 37 CFR 1.136(a) and authorizes the Patent Office to charge Kalow & Springut LLP's credit card for the required fee. No additional fee is believed to be due with respect to filing this amendment. If any additional fees are due, or an overpayment has been made, please charge, or credit, our Deposit Account No. 11-0171 for such sum.

If the Examiner has any questions regarding the present application, the Examiner is cordially invited to contact Applicants' attorney at the telephone number provided below.

Respectfully submitted,

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